RIDOLFI

M E M O R A N D U M

DATE: January 3, 2011

TO: Rose Longoria, Yakama Nation Fisheries Resource Management Program

FROM: Colin Wagoner, P.E.

SUBJECT: Comments on LWG Portland Harbor Feasibility Study presentations made on December 14, 2010

RIDOLFI has reviewed materials presented by LWG on December 14, 2010 at the screening check-in meeting for the Feasibility Study (FS) and offers the following comments. Generally speaking, we found the information to be so narrowly focused that it is difficult to understand how it will be used in the FS. In the section below, we offer comments on the four individual presentations.

Presentation 1: Preliminary Capping Chemical Isolation Evaluation

This presentation was developed by LWG to make the case that the parameters that they have been asked to use when evaluating cap effectiveness are overly conservative when compared to "Guidance-based" parameters that they used as an alternative. Their conclusion is that if they are forced to continue using the "Region 10" designated approach, capping will be screened out as ineffective for most of the contaminated areas in Portland Harbor.

We recommend supporting a conservative analysis of capping as directed by EPA for several reasons. By definition, capping means that the contaminants in question are left in a dynamic river system for perpetuity. Many of the contaminants that drive risk in Portland Harbor are highly toxic and extremely persistent—consequently it is prudent to make conservative assumptions about cap effectiveness. We understand that there is uncertainty regarding a number of parameters that influence estimates of cap effectiveness. For example, as indicated on slide 16 of the presentation, the range of "cappable" (sediments that can be capped without exceeding water quality standards) PCB concentrations is 3 to 800 parts per billion (ppb). While the specific numbers are uncertain, the general concept that groundwater upwelling through a capped area will promote contaminant transport through the cap into the river is not, and we support a conservative approach. Similarly, while it is tempting to assume a non-zero degradation rate for contaminants such as PCBs, which will have the effect of decreasing concentrations over time so that eventually there is no potential for water quality violations, we do not see this as a prudent approach. The sediments in question have been subject to degradation for decades, often at the sediment-surface water interface where the potential for degradation is likely higher than would be the case for capped sediments that are isolated from much biological, light, and other agents that promote degradation. Finally, in the context of the precautionary principle, it is prudent to make conservative assumptions about the effectiveness

of leaving contaminants in the river. The system is dynamic and factors including climate change and ongoing urbanization may increase the likelihood of releasing contaminants from under a cap in the future.

The modeling that was presented did not include the presence of a reactive layer in the cap geometry, which would make the caps more effective. As they indicated, the analysis was preliminary. It is likely that a more detailed analysis can identify areas that are "cappable" with a more robust design.

Presentation 2: Preliminary Methods for Volume Determinations

The second presentation discussed three primary topics. First, the methodology for calculating areas and volumes of sediment that might need dredging was presented. Second, various scenarios where the LWG considers dredging impractical because of interferences from structures were presented. Third, adjustment factors to convert raw volumes into removal volumes were presented. Each of these topics was presented in a hypothetical sense – that is, the total volume of sediment exceeding screening values was not presented for the first topic, the volume or area of sediment that might be excluded from dredging was not presented for the second topic, and the volume of the adjustment factor was not presented for the final topic. As such, it is difficult to evaluate the approach; this is an instance where more detail is required. This is particularly true for the second topic, because while it seems plausible that it would not make sense to remove some structures that are particularly substantial, it is inappropriate to make such exclusions using a "rule-based" approach. It would be more prudent to evaluate each structure on a case-by-case basis. We question the adjustment factors presented for the third topic may be overly conservative such that the volume estimates, and therefore costs are higher than might be necessary, which seems to be a strategy to make dredging seem unattractive.

Presentation 3: Disposal Site Screening Evaluation

The third presentation discussed disposal sites for sediments that might be dredged during remedial actions. The evaluation considered three categories of disposal sites: 1) existing commercial landfills, 2) confined disposal facilities (CDF), and 3) confined aquatic disposal facilities (CAD). The difference between the last two is that CDFs are aquatic sites that use dikes to enclose the sediment on one or more sides, while CADs are sites where the contaminated sediment is placed in a subaqueous depression, which may be subsequently capped. The evaluation indicated that the commercial landfills will be retained for the FS. Only Ross Island will be retained in the FS and at least two CDFs will be retained (T-4, and Swan Island). The general analysis provided in the presentation seemed reasonable although it was somewhat sterile because of lack of comparable costs for the three broad categories and lack of disposal volumes (see discussion of the second presentation).

Presentation 4: Sensitivity/Uncertainty Analysis and Other Evaluations to Support SMA Refinement

The fourth presentation was a fairly generic presentation on sensitivity and uncertainty, which generally pointed out LWG's discomfort with the preliminary remediation goals that EPA has directed them to use. The presentation listed numerous parameters in the risk assessment that they would like to evaluate in a risk management process. These included different approaches for establishing background concentrations, data handling approaches, risk reduction over time approaches, and sensitivity analyses for human health and ecological risk assessments, among others. It was essentially impossible to evaluate these proposals because no details were provided. The single example that was shown with any specifics was the concept of using zero in numerical calculations as a replacement for non-detects instead of using one half the detection limit as they have been directed to do by EPA. This example caused us considerable consternation, because it represents the lowest theoretical result and is clearly biased toward a low estimate of risk and would thus lead to less protective remedies. As such, this leads the us to the conclusion that sensitivity analyses should be discouraged because LWG seems intent on providing examples that will be biased towards "no action" rather than unbiased analyses that can help decision makers.